

CLAIMS

1. A dynamo-electric machine comprising:
a tooth opposing the magnet at a predetermined gap;
a coil having at least part of the tooth disposed therein;
and

a yoke disposed so as to oppose the magnet,
wherein the tooth is mounted to the yoke in such a manner
that at least part thereof is inserted through the magnet-opposed
surface of the yoke, and

the cross-sectional area of the tooth at the portion being
inserted into the yoke, which is taken perpendicularly with
respect to a line of magnetic force generated at the tooth when
the coil, is energized is larger than the cross-sectional area
of the portion of the teeth disposed inside the coil, which
is taken perpendicularly with respect to the line of magnetic
force.

2. A dynamo-electric machine according to Claim 1,
wherein the tooth is formed by laminating a plurality of steel
plates each having the portion to be inserted into the yoke
and the portion to be disposed within the coil molded integrally
with each other, and

the width of the each steel plate at the portion to be
inserted into the yoke when viewed in the direction of lamination
is larger than the portion to be disposed within the coil when
viewed in the direction of lamination.

3. A dynamo-electric machine according to Claim 1 or 2, wherein the plurality of teeth are provided, and the plurality of teeth are mounted to the yoke in such a manner that the lines of magnetic force generated at the portions of the plurality of teeth to be disposed within the coils when the coil is energized are substantially parallel with each other.

4. A dynamo-electric machine according to any one of Claims 1 to 3, wherein the cross-sectional area of the magnet-opposed end portion of the tooth opposing the magnet, which is taken perpendicularly with respect to the line of magnetic force generated at the tooth when the coil is energized, is smaller than the cross-sectional area of the portion to be disposed within the coil, which is taken perpendicularly with respect to the line of magnetic force generated at the portion to be disposed within the coil.

5. A dynamo-electric machine according to Claim 4, wherein the plurality of coils are provided, and the plurality of teeth are disposed inside the plurality of coils at least partly, and

the plurality of coils are integrally molded in such a manner that the lines of magnetic force generated at the portions of the plurality of teeth disposed within the respective coils are parallel with each other when the plurality of coils are energized.

6. A dynamo-electric machine according to Claim 5,

wherein the magnet-opposed end portions of the plurality of teeth facing the magnet are located outside the plurality of coils,

a plurality of cores are disposed in the vicinity of the magnet-opposed end portions of the plurality of teeth opposing the magnet, and

the plurality of cores and the plurality of coils are integrally molded.

7. A dynamo-electric machine having a magnet for a magnetic field comprising:

a tooth opposing the magnet at a predetermined gap; and

a coil having at least part of the tooth disposed therein,

wherein the cross-sectional area of the magnet-opposed end portion of the tooth opposing the magnet, which is taken perpendicularly with respect to a line of magnetic force generated at the tooth when the coil, is energized is smaller than the cross-sectional area of the portion to be disposed within the coil, which is taken perpendicularly with respect to the line of magnetic force generated at the portion to be disposed within the coil.

8. A dynamo-electric machine according to Claim 7, wherein the plurality of teeth and cores are provided respectively, and the plurality of teeth are disposed at least partly within the plurality of coils, respectively, and

a yoke having the plurality of teeth mounted thereon so

that the lines of magnetic force generated at the portions of the plurality of teeth provided within the coils respectively are substantially parallel with each other is provided, and

the plurality of coils are integrally molded in a state in which the lines of magnetic force generated at the portions of the plurality of teeth provided within the coils respectively are substantially parallel with each other.

9. A dynamo-electric machine according to Claim 8, wherein the magnet-opposed end portions of the plurality of teeth facing the magnet are located outside the plurality of coils,

a plurality of cores are disposed in the vicinity of the magnet-opposed end portions of the plurality of teeth opposing the magnet, and

the plurality of cores and the plurality of coils are integrally molded.

10. A dynamo-electric machine according to Claim 8 or 9, wherein the plurality of teeth are mounted to the yoke in a state in which at least parts thereof are inserted into the yoke through the magnet-opposed surface of the yoke, and

the cross-sectional areas of the respective teeth at the portions being inserted into the yoke, which are taken perpendicularly with respect to the lines of magnetic force generated at the respective teeth when the respective coils are energized, are larger than the cross-sectional area of the

portions of the respective teeth disposed inside the respective coils, which is taken perpendicularly with respect to the lines of magnetic force.